

HLA-Z1

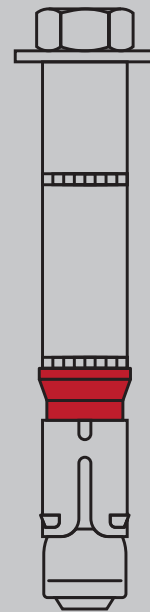
HIGH LOAD STRUCTURAL EXPANSION ANCHOR / ZINC PLATED / C1 & C2 SEISMIC RATED

ZP

CERTIFICATION

TDS

Technical Data Sheet



NCC
COMPLIANT
AS 5216



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HIGH-LOAD STRUCTURAL EXPANSION ANCHOR / ZINC PLATED / C1 & C2 SEISMIC RATED

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High-Load Structural Expansion Anchor,
Zinc Plated, C1 & C2 Seismic Rated



NCC
COMPLIANT
AS 5216



- High strength mechanical anchor, thick sleeve gives additional shear strength
- Connecting structural steel to concrete, temporary works, heavy loads, industrial
- Zinc Plated ($\geq 5\mu\text{m}$) for dry internal environments or temporary works

AS 5216 Compliant

ETA Cracked and Uncracked Concrete

C1 & C2 Seismic Rated

R30 - R120 Fire Rated

Swiss Shock Load Approval

Supported by AFOS Anchor Design Software

Anchor Summary

Part Number	Description, Dia- t_{fix} x L	Drill Dia, d_0	Max. Fixture Thickness, t_{fix} ¹⁾	Bolt Thread Dia	Effective Anchor Depth, $h_{ef,min} - h_{ef,max}$	Embedment Depth, h_{nom}	Drill Hole Depth, h_i	Min. Concrete Thickness, h_{min}	Seismic C1 / C2	Design Capacity in 32MPa Cracked Concrete ^{1) 2)}		Indicative Price Per Fixing ³⁾
										Tension	Shear	
1023.0100075	10-10 x 75mm	10mm	10mm	M6	50 - 60mm	$h_{ef} + 10\text{mm}$	$h_{ef} + 15\text{mm}$	$h_{ef} + 50\text{mm}$	- / -	4.2kN	14.4kN	\$3.13
1023.0100095	10-30 x 95mm		30mm		50 - 76mm				- / -			\$3.47
1023.0120085	12-10 x 85mm	12mm	10mm	M8	60 - 70mm	$h_{ef} + 10\text{mm}$	$h_{ef} + 20\text{mm}$	$h_{ef} + 60\text{mm}$	✓ / ✓	10.1kN	24.0kN	\$4.08
1023.0120095	12-20 x 95mm		20mm		60 - 80mm				✓ / ✓			\$4.40
1023.0120125	12-50 x 125mm		50mm		60 - 100mm				✓ / ✓			\$4.85
1023.0150106	15-15 x 106mm	15mm	15mm	M10	71 - 86mm	$h_{ef} + 14\text{mm}$	$h_{ef} + 24\text{mm}$	$h_{ef} + 69\text{mm}$	✓ / ✓	13.4kN	34.7kN	\$6.21
1023.0150136	15-45 x 136mm		45mm		71 - 110mm				✓ / ✓			\$11.02
1023.0180117	18-10 x 117mm	18mm	10mm	M12	80 - 90mm	$h_{ef} + 15\text{mm}$	$h_{ef} + 25\text{mm}$	$h_{ef} + 80\text{mm}$	✓ / ✓	20.7kN	41.5kN	\$9.13
1023.0180177	18-70 x 177mm		70mm		80 - 130mm				✓ / ✓			\$12.88
1023.0240150	24-20 x 150mm	24mm	20mm	M16	100 - 114mm	$h_{ef} + 20\text{mm}$	$h_{ef} + 30\text{mm}$	$h_{ef} + 100\text{mm}$	✓ / ✓	29.0kN	58.0kN	\$19.81
1023.0240200	24-50 x 200mm ⁴⁾		50mm		115 - 150mm				✓ / ✓			\$27.99
1023.0280172	28-10 x 172mm	28mm	10mm	M20	125 - 135mm	$h_{ef} + 25\text{mm}$	$h_{ef} + 35\text{mm}$	$h_{ef} + 125\text{mm}$	✓ / ✓	40.5kN	81.1kN	\$31.05
1023.0280192	28-30 x 192mm		30mm		125 - 155mm				✓ / ✓			\$35.94
1023.0320232	32-30 x 232mm	32mm	30mm	M24	150 - 180mm	$h_{ef} + 20\text{mm}$	$h_{ef} + 30\text{mm}$	$h_{ef} + 150\text{mm}$	✓ / ✓	53.3kN	106.6kN	\$86.07
1023.0320262	32-60 x 262mm		60mm		150 - 210mm				✓ / ✓			\$95.70

1) At minimum anchor depth, $h_{ef,min}$

2) Without concrete edge or anchor spacing influence. Static and quasi-static load such as wind. To consider all design inputs and details, please refer to our AFOS Anchor Design Software or the ETA.

3) Based on a volume of 50+ to 200+ fixings, as of March 2026.

4) Corresponds to "HLA-Z1 M16L" in AFOS to represent the special longer anchor.

HLA-Z1

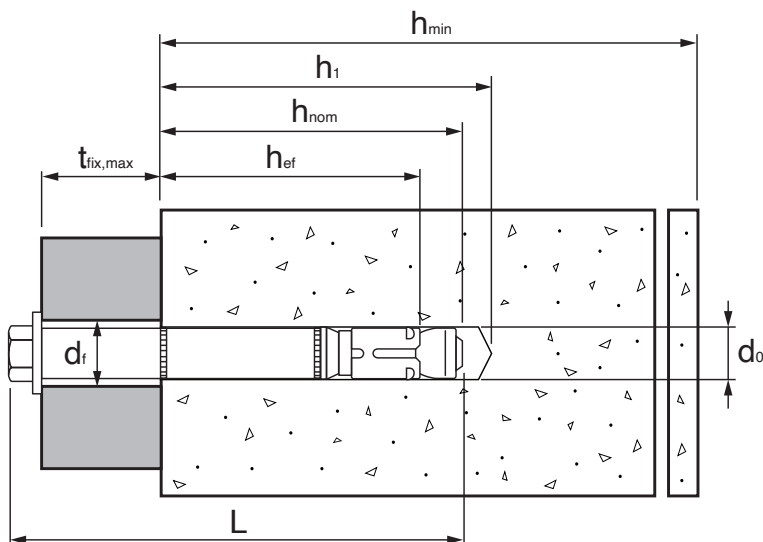
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Example 1

- Using AFOS "HLA-Z1 M12, $h_{ef}=80\text{mm}$ " was specified. There is a 10mm thick base plate without packing or grout under, giving a total fixture thickness of 10mm.
- 18-10 x 117mm HLA-Z1 is the correct anchor to use. The 177mm long anchor can be used also, but it would be unnecessarily more costly or could be too long for the concrete thickness.

Example 2

- Using AFOS "HLA-Z1 M12, $h_{ef}=115\text{mm}$ " was specified. There is 20mm of packing and a 10mm thick base plate, giving a total fixture thickness of 30mm.
- 18-70 x 177mm HLA-Z1 is the correct anchor to use. The maximum fixture thickness is 70mm at $h_{ef}=80\text{mm}$. So at $h_{ef}=115\text{mm}$ the 177mm long anchor can accommodate a fixture thickness of $70\text{mm}-(115-80)=35\text{mm}$.

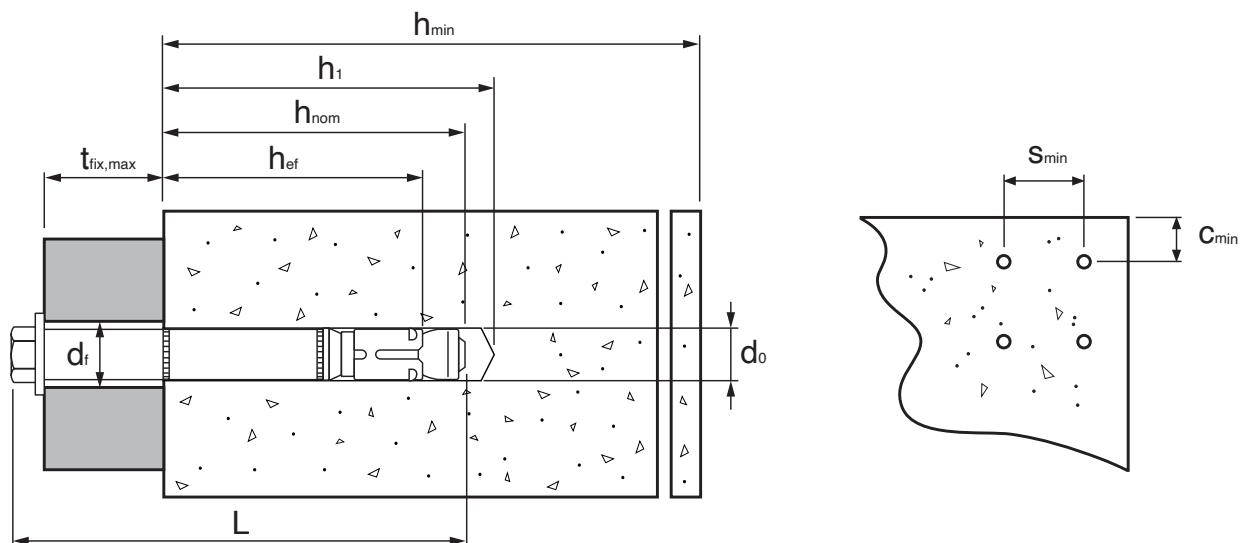


Installation Parameters

Anchor Size		[mm/M]	10/M6	12/M8	15/M10	18/M12	24/M16	24/M16L	28/M20	32/M24
Bolt Thread Diameter			M6	M8	M10	M12	M16	M16	M20	M24
Minimum effective anchorage depth	$h_{ef, min}$	[mm]	50	60	71	80	100	115	125	150
Maximum effective anchorage depth	$h_{ef, max}$	[mm]	76	100	110	130	114	150	185	210
Embedment depth	h_{nom}	[mm]	$h_{ef} + 10$	$h_{ef} + 10$	$h_{ef} + 14$	$h_{ef} + 15$	$h_{ef} + 20$	$h_{ef} + 20$	$h_{ef} + 25$	$h_{ef} + 20$
Drill hole diameter	d_0	[mm]	10	12	15	18	24	24	28	32
Depth of drill hole	$h_1 \geq$	[mm]	$h_{ef} + 15$	$h_{ef} + 20$	$h_{ef} + 24$	$h_{ef} + 25$	$h_{ef} + 30$	$h_{ef} + 30$	$h_{ef} + 35$	$h_{ef} + 30$
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	12	14	17	20	26	26	31	35
Installation torque	T_{inst}	[Nm]	15	30	50	80	160	160	280	280
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 50$	$h_{ef} + 60$	$h_{ef} + 69$	$h_{ef} + 80$	$h_{ef} + 100$	$h_{ef} + 115$	$h_{ef} + 125$	$h_{ef} + 150$
Minimum spacing ^{1) 2)} cracked concrete	s_{min}	[mm]	50	50	60	70	100	100	125	150
	for $c \geq$	[mm]	50	80	120	140	180	180	300	300
Minimum edge distance ^{1) 2)} cracked concrete	c_{min}	[mm]	50	55	60	70	100	100	200	150
	for $s \geq$	[mm]	50	100	120	160	220	220	350	300
Minimum spacing ^{1) 2)} uncracked concrete	s_{min}	[mm]	50	60	60	70	100	100	125	150
	for $c \geq$	[mm]	80	100	120	140	180	180	300	300
Minimum edge distance ^{1) 2)} uncracked concrete	c_{min}	[mm]	50	60	60	70	100	100	200	150
	for $s \geq$	[mm]	100	120	120	160	220	220	350	300

1) Intermediate values by linear interpolation

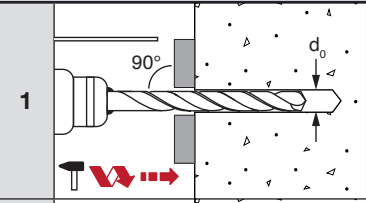
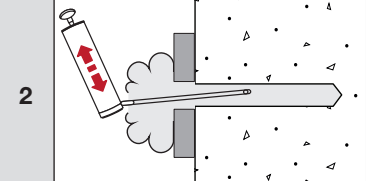
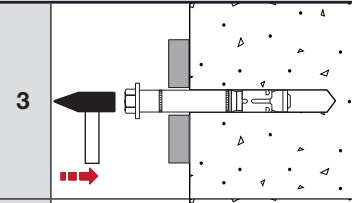
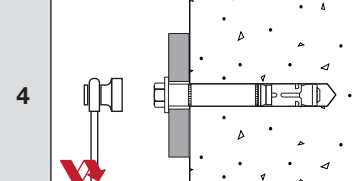
2) For fire exposure from more than one side $c \geq 300\text{mm}$ or $c_{min} \geq 300\text{mm}$ applies.



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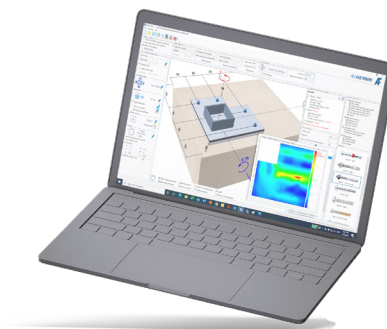
Installation Instructions

Drill hole preparation and cleaning		Install expansion anchor	
1		Drill hole perpendicular to concrete surface. Using a vacuum drill, continue with step 3.	
2		Blow out dust or alternatively vacuum clean down to the bottom of the hole.	
3		Drive in anchor.	
4		Apply installation torque T_{inst} by using a calibrated torque wrench.	

For other anchor properties, please refer to the ETA on our website.



AFOS[®]
Anchor Design Software

[DOWNLOAD](#)
allfasteners.com.au/afos


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